




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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,375	06/19/2001	Shousheng He	34650-00593	3992
23932	7590	04/13/2005	EXAMINER	
JENKENS & GILCHRIST, PC 1445 ROSS AVENUE SUITE 3200 DALLAS, TX 75202			MEEK, JACOB M	
			ART UNIT	PAPER NUMBER
			2637	

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b> 	
	09/885,375	HE, SHOUSHENG	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jacob Meek	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 December 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 14, 16 - 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 5, 9 - 14, 16, 18, 19, 21, 22 is/are rejected.
- 7) ☐ Claim(s) 4 - 6, 17, 20, 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendment filed December 10, 2004 has been entered.

### ***Drawings***

2. The drawings were received on December 10, 2004. These drawings are acceptable.

### ***Response to Arguments***

3. Applicant's arguments filed December 10, 2004 have been fully considered but they are not persuasive. The amended independent claims are interpreted as still reading on Skold for the following reasons.

The amended limitation "any  $m+15$  consecutive symbols of a 26-symbol training sequence to estimate a transmission channel for different channel spans  $m$ " when given its broadest possible interpretation in view of applicant's disclosure is still interpreted as reading on Skold. First, the modification of "16 symbol segment" to " $m+15$  consecutive symbols", still reads on Skold's limitation of 16 symbols as the definition of  $m$  ( $1 \leq m \leq 7$ ) includes 16 symbols. Second, the modification of "equalizer window sizes at different synchronization points" to "channel spans  $m$ " is interpreted as broadening the scope of the claimed invention. Channel spans as interpreted in view of disclosure refer to equalizer taps (see page 19, line 10).

With regard to the argument that Skold teaches using only 16 central symbols of training sequence. This appears to be true based on Skold's disclosure. However, Examiner notes that applicant's claim of " $m+15$  consecutive symbols" is inclusive of the 16 central symbols of the training sequence and therefore does not exclude Skold's disclosure (or any

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other art using 16 central symbols). As such, original rejection of claims 1, 11, 12 and 14 are maintained. New Art rejections for new and amended claims appear below.

With regard to the arguments regarding claims 2 – 5, 9, 10 and 13. Given that the argument for allowability of these claims is based on the allowability of claims 1 and 11, which have been determined not to be allowable, these claims will stand rejected. Also, new claim 16 on which claim 2 also depends stands rejected below.

### ***Claim Objections***

4. Claims 1, 11, and 14 are objected to because of the following informalities: “m” and “m+1” are stated as limitations in claims. In order to better limit and define claim the definition and range of values for “m” should be included in claims. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 4, 16, 18, 19, 21 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Skold (US Patent 5,373,507).

With regard to claim 4, Skold teaches an equalizer with 10 taps (see column 5, lines 9 – 14 where this is interpreted as equivalent).

With regard to claims 19, and 22 claim limitation is identical to claim 16 and are similarly analyzed.

With regard to claim 16, Skold discloses the step of estimating the transmission channel is performed at different synchronization points (see column 2, lines 3 – 18 where this is interpreted as equivalent).

With regard to claims 18, and 21 claim limitation is identical to claim 16 and are similarly analyzed.

6. Claims 1, 11, 14 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Johansson (US-6,792,052).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

With regard to claim 1, Johansson teaches a method of for estimating a transmission channel in a digital communications system which operates in accordance with GSM specifications, communication system including a receiver which receives a signal transmitted over the transmission channel, receiver including a channel estimation-based equalizer, and equalizer having a window size adapted to the actual delay spread of the transmission channel (see column 1, lines 30 – 63), and equalizer using an estimate of transmission channel for synchronizing and correcting received signal (see column 3, lines 44- 54),

received signal including a 26-symbol training sequence (see column 2, lines 5 – 13) said method comprising: using a consecutive  $m+15$  symbols of said 26-symbol training sequence to estimate the transmission channel for different channel spans  $m$  (see column 5, lines 38 – 48 where this is interpreted as equivalent).

With regard to claim 11, Johansson teaches a method of for estimating a transmission channel in a digital communications system which operates in accordance with GSM / EDGE specifications, communication system including a receiver which receives a signal transmitted over the transmission channel, receiver including a channel estimation–based equalizer using an estimate of transmission channel for correcting received signal (see column 3, lines 44- 54), received signal including a 26-symbol training sequence (see column 2, lines 5 – 13) said method comprising: using a consecutive  $m+15$  symbols of said 26-symbol training sequence to estimate the transmission channel for different channel spans  $m$  (see column 5, lines 38 – 48 where this is interpreted as equivalent).

With regard to claim 14, Johansson teaches an apparatus for estimating a transmission channel in a digital communications system which operates in accordance with GSM / EDGE specifications, communication system including a receiver which receives a signal transmitted over the transmission channel, receiver including a channel estimation–based equalizer, which uses an estimate of transmission channel for correcting received signal (see column 3, lines 44- 54), received signal including a 26-symbol training sequence (see column 2, lines 5 – 13) using any consecutive  $m+15$  symbols of said 26-symbol training sequence to estimate the transmission channel for different channel spans  $m$  (see column 5, lines 38 – 48 where this is interpreted as equivalent).

With regard to claim 16, Johansson teaches a method of estimating the transmission channel is performed at different synchronization points (see column 3, lines 44 – 54 where this is interpreted as equivalent).

***Allowable Subject Matter***

7. Claims 6 –8, 17, 20, and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Other Cited Prior Art***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lindoff (US-6,373,888) discloses substantial elements of applicant's claimed invention. Zhou (US-6,859,491) discloses a method of correlation using all 26 bits of training sequence. Chen (US-6,775,521) discloses a technique of using sliding windows for correlation. Piirainen (US-6,748,031 and US-6,631,160) discloses techniques for channel estimation.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Meek whose telephone number is (571)272-3013. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571)272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMM



JAY K. PATEL  
SUPERVISORY PATENT EXAMINER